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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,481	03/31/2004	Yasushi Karasawa	9319K-117DVA	7780
27572	7590	10/12/2006		
HARNES, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303				
			EXAMINER CULBERT, ROBERTS P	
			ART UNIT	PAPER NUMBER

1763

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/814,481

Applicant(s)

KARASAWA ET AL.

Examiner

Roberts Culbert

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15, 18 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15, 18 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Arguments

Applicant's arguments filed 7/13/06 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 3,354,022 to Dettre et al. in view of U.S. Patent 3,765,969 to Kragness et al.

Regarding Claim 21, Dettre et al. teach a method for manufacturing a water-repellant structural member comprising forming irregularities on an external surface of the member (Fig. 3-6), the irregularities having protrusion portions and recessed portions, and controlling the forming step so that said protrusions have a substantially uniform height with an evenness of height which is .5 times a width of one of the group selected from the protrusion portions and recess portions (Col. 3, Line 74 – Col. 4, Line 1), and said recesses have an upper opening width in a range of “250 μm or below” (Col. 4, Lines 51-57) so that any droplet minimally falls in any of said recess portions and each droplet comes into contact with an air layer in each of said recess portions.

Dettre et al. do not expressly teach said recesses have an upper opening width in a range of 1-10 μm or a top surface width of the protrusions is in the range 1 to 10 μm . However, Dettre et al. teach a recess width less than 250 μm as well as comprising 60% depressions (“air content of at least 60%” Col. 3, Line 65 - Col. 4, Line 39), thus, a range for a top surface width of the projections would also correspond to a range less than 250 μm . Dettre et al. discloses a range encompassing the somewhat narrower

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claimed range, which is sufficient to establish a *prima facie* case of obviousness. The Specification of the instant application (pages 10 and 20) does not teach that the recited range is critical to the invention but teaches similarly that recesses suitable for forming water repellant surfaces are more broadly 0.2 –200 μm or 0.2 - 500 μm (Specification pages 10 and 20)

Regarding Claims 15, 18 and 21, Dettre teaches that various methods may be used to form the projections and depressions on the surface such as chemically or mechanically modifying any metal or non-metal to give the desired surface pattern. (C8, L40-45) However, Dettre does not explicitly teach a photolithography process and an anisotropic wet etching process.

Anisotropic wet etching is a well-known chemical modification technique for forming patterned depressions in a material surface. For example, Kragness et al. teach that single crystal materials such as silicon may be chemically modified or etched anisotropically to produce an ordered array of projections and depressions. (Figures 6-10)

It would have been obvious to one of ordinary skill in the art at the time of invention to use anisotropic chemical etching as shown by Kragness et al. in order to provide suitable chemical modification techniques for the formation of a water repellant surface.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (571) 272-1433. The examiner can normally be reached on Monday-Friday (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



R. Culbert
Examiner
Art Unit 1763



Parviz Hassanzadeh
Supervisory Patent Examiner
Art Unit 1763